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BASIN EXPLOSIONS AND ESCAPE PHENOMENA IN THE TWIN-WELL DUFFING OSCILLATOR : COMPOUND GLOBAL BIFURCATIONS ORGANIZING BEHAVIOUR

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**BASIN EXPLOSIONS AND ESCAPE PHENOMENA IN THE TWIN-WELL DUFFING
OSCILLATOR: COMPOUND GLOBAL BIFURCATIONS ORGANIZING BEHAVIOUR**

by

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The sinusoidally driven, twin-well Duffing oscillator has become a central archetypal model for studies of chaos and fractal basin boundaries in the nonlinear dynamics of dissipative ordinary differential equations. It can also be used to illustrate and elucidate universal features of the escape from a potential well, the jumps from one-well to cross-well motions displaying similar characteristics to those recently charted for the cubic one-well potential. We identify here some new codimension-two global bifurcations which serve to organize the bifurcation set and structure the related basin explosions and escape phenomena.

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